

GROUP 1700

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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Denis COTTEVIEILLE, *et al.*

Appln. No.: 10/042,350

Group Art Unit: 1714

Confirmation No.: 6289

Examiner: Margaret G. MOORE

Filed: January 11, 2002

Attorney Docket No.: Q68000

For: TEAR-RESISTANT COMPOSITION BASED ON SILICONE RUBBER FOR CABLES  
AND FOR POWER ACCESSORIES

**RESPONSE UNDER 37 C.F.R. § 1.111**

**MAIL STOP NON-FEE AMENDMENT**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Please consider the remarks below in response to the Action mailed February 19, 2003.

Claims 1-8 are all the claims pending in the application.

The present invention relates to compositions based on silicone rubber that are used in the fields of telecommunications and power cables, and of power accessories.

An object of the invention is to provide a composition based on silicone rubber wherein the composition has improved tear strength.

Present claim 1 recites:

A composition based on silicone rubber and resistant to tearing, for cables and for power accessories, said composition comprising:

- the silicone rubber on which it is based, constituted by an organopolysiloxane;
- a first coupling agent compatible with said organopolysiloxane, and having hydroxyl first functional groups;

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- a polymer material resistant to tearing;
- a second coupling agent compatible with said polymer and having second functional groups suitable for reacting with said hydroxyl first groups; and
- a crosslinking agent and/or catalyst.

Referring to claim 1, Applicants kindly draw the Examiner's attention to a pair of facts about the composition of claim 1 that explain why the recited elements of claim 1 are patentably distinct from the prior art.

(1) The first and second coupling agents are compatible respectively with the organopolysiloxane and with said polymer material, in the sense that the organopolysiloxane and the polymer material do not degrade the initial properties respectively of the silicone rubber and of the polymer material, and that they guarantee that the composition is homogeneous after mixing.

(2) Chemical reaction between said first and second functional groups of said first and second coupling agents gives rise to physical coupling via diffusion bonds (weak interaction) between said organopolysiloxane and the polymer material. Therefore this physical coupling does not involve any chemical bond (strong bond) between said organopolysiloxane and the polymer material.

Applicants kindly request that the Examiner compare the elements of present claim 1 with the disclosures of Zama and Brewer, in view of (1) and (2) above, and further in view of the following remarks concerning Zama and Brewer.

U.S. Patent No. 5,171,787 to Zama, et al. ("Zama")

Zama discloses a composition based on silicone rubber with the goal of providing cured elastomer with excellent mechanical strength. Some results of tensile strength and elongation are given, but there is no evaluation of the resistance to tearing. Zama's disclosure regarding tensile

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strength and elongation, without more, is not a substitute for a clear and particular disclosure regarding tear strength.

In addition, Zama's composition is for oil seal rubber hose or tube, and not cable and power accessories.

Referring, for example, to Example 9 in the table bridging columns 13 and 14, Zama's composition comprises:

- the silicone rubber (component (i) of A) on which it is based, constituted by an organopolysiloxane;
- a component B (silicone compound (iii) of component B) compatible with said organopolysiloxane, having hydroxyl first functional groups, component B which is not a coupling agent forming with component I a network structure through hydrolysis and condensation reactions;
- a catalyst and not a coupling agent (dimethylhexylamine as component C) for said hydrolysis and condensation reactions, amine being reactive functional group only in one extremity and only with component B;
- peroxide and crosslinking aid;
- a polymer material (ethylene-propylene component II of A); and
- stearic acid, which is not a coupling agent but a crosslinking agent for the polymer (see the use of polyfunctionnal crosslinking at column 8), thus having carboxylic functional groups only suitable for reacting with crosslinkable groups of said polymer.

The Examiner has taken the position that Zama anticipates the invention of claim 1.

Applicants respectfully disagree.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference (*see, Verdegaal Bros. v.*

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Union Oil Co. of California, 814 F.2d 628, 631 (Fed. Cir. 1987); MPEP §2131). The identical invention must be shown in as complete detail as is contained in the claim (*see*, Richardson v. Suzuki Motor Co., 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)).

Zama does not disclose, either expressly or inherently, two coupling agents reacting chemically together. Zama's composition, moreover, is not homogeneous. In fact, Zama's composition comprises insoluble content (Applicants refer to column 6, lines 13-18). Therefore, Zama cannot anticipate the invention of present claim 1.

Furthermore, Zama fails to render obvious the invention of present claim 1. Specifically, a proper analysis under §103 requires, *inter alia*, consideration of whether the prior art would have suggested to those of ordinary skill in the art that the prior art should be modified in order to arrive at the claimed invention. The suggestion to modify must be "clear and particular" (*see*, In re Sang Su Lee, 2002 U.S. App. LEXIS 855 (Fed. Cir. 2002); Winner Int'l Royalty Corp. v. Ching-Rong Wang, 53 USPQ2d 1580, 1586-1587 (Fed. Cir. 2000)).

Zama does not contain a clear and particular suggestion to modify Zama's disclosure such that two coupling agents react chemically together, and such that Zama's composition is homogeneous. Accordingly, Applicants respectfully request the withdrawal of the §102 and §103 rejections based on Zama.

U.S. Patent No. 6,362,288 to Brewer, et al. ("Brewer")

Brewer relates to the compatibilization of a silicone base and a polyamide resin.

Brewer discloses a composition based on silicone rubber for cables (not for power accessories). Brewer discloses the results of tensile strength and elongation, but with no evaluation of the resistance to tearing. Brewer's disclosure regarding tensile strength and elongation, without more, is not a substitute for a clear and particular disclosure regarding tear strength.

Referring to sample A33, Brewer's composition comprises:

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- a silicone base (BASE1) including:
  - the silicone rubber on which it is based, constituted by an organopolysiloxane (B'= PDMS of BASE1), and
  - a filler (B'') compatible with said organopolysiloxane, which is not a coupling agent, and having hydroxyl first functional groups only suitable to react with the silicone rubber;
- a polymer material rheologically stable (polyamide A = NYLON) with no indication of its resistance to tearing;
- a compatibilizer (C= COMPATIBILIZER 14 aminopropyl terminated polydimethylsiloxane) compatible with said polymer and with silicone rubber, and having reactive functional groups;
- a crosslinking agent (XLINKER);
- a stabilizer (IRGANOX) which is not a coupling agent; and
- and a catalyst (E= CATALYST1).

COMPATIBILIZER 14 interacts with the polymer but reacts chemically with the silicone rubber; thus, it is not a coupling agent.

COMPATIBILIZER 15 (see sample A34) interacts with the polymer and with the silicone rubber -- thus, it plays the role of one coupling agent.

The Examiner has taken the position that Brewer anticipates the invention of claim 1.

Applicants respectfully disagree.

Brewer does not disclose, either expressly or inherently, first and second coupling agents selected to chemically react together. Therefore, Brewer cannot anticipate the invention of present claim 1.

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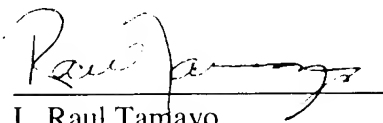
Furthermore, Brewer does not contain a clear and particular suggestion to modify Brewer's disclosure to contain first and second coupling agents selected to chemically react together. Therefore, Brewer does not render obvious the invention of claim 1.

Accordingly, Applicants respectfully request the withdrawal of the §102 and §103 rejections based on Brewer.

Reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, she is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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Date: May 19,2003